

## **b.—PATHOLOGY OF THE NERVOUS SYSTEM AND MIND AND PATHOLOGICAL ANATOMY.**

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### **THE DIAGNOSTIC VALUE OF CONJUGATE DEVIATION OF THE EYES AND OF ABNORMAL POSITIONS OF THE BODY IN CEREBRAL DISEASE.**

Dr. Martin Bernhardt, *Virchow's Archives* LXIX. I., discusses at length the diagnostic importance of symptoms to which attention was called in 1868 by, Prevost of Geneva, namely, the conjugate rotation of the eyes and head, and the decubitus in lesions of the brain. That author had laid down the proposition that, in all cases this deviation of the eyes and head is toward the sound side of the brain, and the paralyzed side of the body, both when the lesion is cortical or meningeal, when it involves the centrum semi-ovale (without implication of cerebral ganglia,) in hemorrhages into the lateral ventricle, and those in which only the thalamus and corpus striatum with the peduncle of the same side. Dr. Bernhardt reviews the literature for the cases contradictory to this general rule, and finds several observations by Eichhorst and Curschmann, and himself that are not in accordance; and he also discusses at length the experimental results of Hertwig, Magendie, Schiff, Longet, Adamuk, Ferrier and others who had observed similar phenomena from artificial cerebral lesions in the lower animals. The conclusion he reaches may, perhaps, best be stated in the following from the closing paragraphs of his paper. M. Bernhardt says: "As far as the results of my consideration reach, I have found, out of the whole symptom-complex of the position of the head, the lateral posture, and the ocular deviation, only the last, and this to a very limited degree, of any value for the local diagnosis. It is not the conjugate deviation to the right or left in the horizontal plane, but the occasionally observed vertical deviation that is diagnostic. If one eye is turned downward and the other upward (Magen-die's position), then, according to clinical observations and the experimental results of the majority of investigators, there is undoubtedly a lesion of those parts of the cerebellum next adjoining the crus. This position of the eyes has never been observed with lesions of the cerebrum, and it is also undescribed as occurring with lesions of the pons."

Thus this phenomenon, the ocular position early described by Magendie, is the only one of positive signification. The author's results do not, however, invalidate the fact that, as a rule, the interpretation of the horizontal ocular deviation is according to the statement of Prevost.

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**TUMORS OF THE BRAIN.**—We take from the close of a lengthily continued article by Dr. Petrina, of Prague, on the localization of cerebral tumors, published in the *Vierteljahrschr. fuer die prakt. Heilkunde*. CXXXIII., I.

and II., Bd., following a lengthy analysis of a large number of cases, the following *resume* of the principal diagnostic points to be looked for, as indicating tumors indifferent portions of the brain.

### *I. Tumors of the Convexity.*

Contra-lateral, direct, clonic cramps, limited to only single groups of muscles or single extremities: consciousness usually retained, since only when the tumor is deeply situated and is of uncommon size, do we observe loss of consciousness; hemiplegia never complete, lasting headache, notable vertigo, nervous irritability, and *circumscribed* disturbances of sensibility, amblyopia and alterations of hearing in consequence of intracranial pressure complete the picture. Galvanic reaction of convulsibility.

The central localization of the circumscribed motor disorders of innervation is at present to be only ventured in a general way, and is to be limited to the region of the anterior and posterior central convolutions, and for the symptom of aphasia to the left insular convolution.

### *II. Tumors of the Anterior Lobes.*

Generally frontal headache, the *intellectual sphere implicated*, often *psychic disorder*, with or without combination with partial chorea. Paresis or hemiplegia (the latter less frequently), absence of all disturbance of sensibility; general convulsions with loss of consciousness (rare) only from decided pressure from the large tumor. Frequently decided disturbances of visual power, olfaction, and hearing, are produced by intracranial pressure.

### *III. Tumors of the Parietal Lobes.*

Contra-lateral hemiplegia, frequently occurring suddenly with apoplecticiform attacks. Aphasia very frequent, accompanied with serious compression or destruction of the left insular convolutions. General convulsions when the tumor is large and deep seated compressing the ganglia. Disorders of special sense—except those of sight—rare. Disorders of sensibility, especially of the skin, frequent. Headache (frontal region).

### *IV. Tumors of the Occipital Lobes.*

Of the valid characteristic signs of tumor in this region, only one case XV. afforded the contra-lateral paralysis and the partial oculo-motor paralysis of the same side: on the other hand the remaining pathognomonic symptoms are altogether lacking, the disorders of the intelligence and the psychic activity; the convulsive attacks and all disturbances of sensibility, likewise the implications of the organs of special sense which is mentioned by Ladame, and also Rosenthal and others.

### *V. Tumors of the Motor Ganglia.*

*Nucleus lenticularis*.—Contra-lateral hemiplegia with loss of consciousness and frequently convulsions. High degree of cutaneous anaesthesia when there is simultaneous destruction or implication of the internal capsula; not infrequently aphasia.

*Corpus Striatum*. Complete hemiplegia; loss of consciousness and convulsions, disturbances of psychic functions and intelligence, irritative motor phenomena, such as tremor and choreiform symptoms. Disorders of the organs of special sense apart from amblyopia, rare.

*VI. Tumors of the Optic Thalamus.*

With tumors affecting alone the optic thalamus, extensive motor lesions are altogether lacking, and general convulsions and disorders of sensibility are not constant. According as the tumor affects more the bundles of fibres going to the optic tracts, or those branching out from the cerebral peduncle, we have sometimes predominating paralytic phenomena in the optic nerve, alterations of the pupil, and disturbances of the innervation of the ocular muscles (nystagmus, exophthalmus), sometimes, again, the most remarkable vaso-motor circulation anomalies (striking alterations of temperature, cyanosis, circumscribed redness) as the chief morbid symptoms. Pronounced disorders of speech (retarded speech) and of the intelligence are symptomatic only of quite extensive tumors in the thalamus; decided paralytic phenomena are likewise characteristic of simultaneous destruction of the peduncular fibres, or of one of the motor ganglia.

*VII. Tumors of the Hypophysis.*

Marked somnolence, decided mental weakness and apathy. Remarkable slowness of speech. Amblyopia and amaurosis, and frequently disorders of other organs of sense. Oculo-motor paralysis and cephalalgia. According to Rosenthal's observation, diabetes mellitus likewise occurs as an important complication in cases of tumor in this region.

*VIII. Tumors of the Cerebral Peduncles.*

Serious vaso-motor disorders and temperature anomalies, early oculo-motor paralysis on the same side as the tumor, occasional paralysis of the bladder, contra-lateral paresis and disorder of sensibility; no decided disorder of intelligence. Frequently, disease of the organs of special sense, especially of the optic nerve. Intimations of involuntary movements and position anomalies on the side opposite the tumor.

*IX. Tumors of the Crus Cerebelli.*

Unilateral position of the body, involuntary lateral decubitus, rotation on the axis of the body, unilateral deviation of the orbits, reeling gait, with tendency to fall to one side, frequency of disturbances of special senses; vertigo and headache.

*X. Tumors of the Cerebellum.*

Severe headache, usually in the occipital region, motor irritative phenomena, reeling gait, very severe vertigo, more or less pronounced disorders of co-ordination contra-lateral paresis of the body. Frequently disorder of special sense, convergent strabismus. The same electric reaction as in cases of basal tumor. (Diminished reaction on the sound side of the body.)

*XI. Tumors of the Pons Varolii.*

Alternate hemiplegia, paralysis in the sphere of the ocular muscles (convergent strabismus): paresis of the muscles of the tongue, anæsthesia, dysphagia, disorders of special sense, especially of the visual power; implication of the trigeminus, frequently crossed sensory disorder of the trunk and one-half of the face. Very commonly, vertiginous sensations and marked vaso-motor disturbances. Generally partial convulsions are lacking. Interesting and characteristic electrical reaction in the region

of the paralyzed facialis, extinguishment of the electro-muscular contractility to the induction current, with increased electro-muscular contractility to the galvanic current, and at the same time diminished galvanic irritability of the facial branches.

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THE CONDITION OF THE NERVE CENTRES IN MIGRAINE, EPILEPSY, ETC.—Dr. Sidney Ringer, *Lancet*, May, publishes his views as to the condition of the nervous centres “in migraine, epilepsy and other explosive neuroses.” It is, in brief, that in these there is a lack of resistant power, thus permitting impressions conveyed to certain parts to extend beyond their normal area, thus producing the abnormal symptoms of these diseases. For example, he thus explains an attack of migraine, the common form in which the symptoms are supra-orbital headache, with nausea and vomiting. He says: “In a paroxysm with these symptoms, there occurs an evolution of nervous force, first in that part of the nucleus of the fifth nerve in connection with the supra-orbital nerve; the discharge then travels backwards and involves the centre for vomiting. Ascending to the view now advanced, there is diminished resistance in the nervous structures between these parts, so that a stimulus causing a discharge of force by the fifth nerve can pass backwards and involve the centre for vomiting. It may be urged that, according to this theory, any discharge of force in the nucleus of the fifth nerve should travel to the centre for vomiting, and produce nausea or vomiting; but this is not the case, for if the loss of resistance is slight, only a strong discharge in the fifth nucleus can overstep its usual limits and reach the centre for vomiting. Now, the strength of the discharge depends on the amount of nourishment (potential force) of the nucleus of the fifth, or on the strength of the stimulus converting the potential into kinetic force, chiefly on the amount of potential force. In a paroxysm of migraine, the potential force accumulated by nutrition being discharged, the parts become weakened or depressed, and time is required for nutrition to supply the last discharged force; and till by nutrition the potential force has accumulated to its original amount, each stimulus conducted to the fifth is limited to the part of the nucleus naturally associated with it; but when the potential force has accumulated to a sufficient extent, then the discharge overcomes the weakened resistance and reaches the centre of vomiting.”

Dr. Ringer sums up his case as follows: “In the explosive neurosis there is diminution of resistive power, the nature of the symptoms depending on the part and extent of the nervous system affected; the degree of loss of resistance, varying much in individual cases. When the potential force in the part with diminished resistance is weak, the remaining resistance is sufficient to restrain the evolution of force within its normal limits; hence, we get co-ordinated normal action. But when sufficient time has elapsed, the accumulation of potential force through nutrition becomes so great that when set free by a stimulus it cannot be restrained by a weakened resistance, but overstepping its normal boundaries, it involves neighboring parts, arousing in them irregular unco-ordinated action; in fact, the symptoms of the neurosis attack.”

SPINAL ATROPHY AFTER RESECTION OF NERVE ROOTS.—Bufaliul and Rossi, *Archiv. Italiano*, November, 1876, publish a series of experiments to ascertain the effect in producing atrophy of the cord of section of the spinal roots, the results of which are summed up in the following conclusions:

1. That there is no alteration histologically of the gray matter of the cord from section of the spinal roots, and that there is instead a partial atrophy of the white substance, consisting solely in diminution of the number of the elements of which it is constituted.
2. That the atrophy of the cord due to section of the sciatic roots does not extend beyond the lumbar enlargements.
3. That the atrophy of the cord from section of the spinal nerve roots is most manifest in its posterior and lateral portions; this depending on the interruption of the relations between the spinal ganglia and the sensory fibres contained in the posterior part of the spinal cord.

THEORY OF DIABETIC GLYCEMIA.—At the sitting of the Acad. de Médecine, April 10 (report in the *Bull. Gén. de Thérapeutique*), M. Fleury read a paper entitled "The Dynamo-chemical Theory of Diabetic Glycemia." "*En résumé*," said he, in closing, "the theory, or rather the doctrine that I have the honor of submitting, reduces itself to the following":

"The pathogeny of diabetes mellitus includes two kind of causes, the physiological and the chemical.

"The physiological cause, whatever may be the variety of the lesion, resides in a functional trouble of the general innervation. This shows itself in a vaso-motor paresis, causing a too free flow of the blood in the capillaries. In consequence of this vascular relaxation, the conflict between the oxygen and the carbon does not take place, or occurs only imperfectly; the oxidation of the globules is hindered. The not utilized oxygen, by default of polarization of its ozone, forms, together with the water of the blood, hydrogen peroxide ( $\text{HO}_2$ ). This oxygenated water, instead of being constantly destroyed, as would be the case normally when the walls of the capillaries still retained their contractile energy and tonicity, becomes fixed in the blood, and communicates to it the catalytic property attributed to ferments.

"Every organic or functional lesion of the pneumogastric, causing a hypersthénia of that nervous apparatus, and secondarily a hyposthénia of the sympathetic and its vaso-motor filaments, every vascular hyposthénia due to a direct lesion of the sympathetic nerve fibres, is likely to obstruct the intra-organic combustions, the oxidations of the globules in the capillaries, to prevent the formation of carbonic acid, and to substitute in the veins for blood purely venous and brown, a mixture of arterial and venous blood containing peroxide of hydrogen

"The chemical cause of the formation of glucose in the diabetic patient, in so far as it has to do with blood formed at the expense of the starchy and amylaceous matters of the first digestion, is the setting free by decomposition of a sulphur principal. This is formed in the saliva by the

sulphocyanide of potassium, and in the bile by the taurocholate of soda.

"In the normal condition the separation of sulphocyanide of potassium and of taurocholate of soda gives rise to only a moderate production of sugar. But the saliva, like the bile of a diabetic, secreted at the expense of a blood containing oxygenated water, gives to this peroxide of hydrogen a power of catalytic conversion, which is readily explained if we consider that at a temperature, not above that of the stomach, and in contact with starchy substances, every sulphurous principle, only that it is actually acid, converts starch into sugar and dextrine.

"As regards the sugar generated by diabetics, at the expense of nitrogenized substances, albuminoids, the mere fact of the diminution of the combustions and oxidations within the organism in consequence of a non-utilization of a part of the oxygen and of the carbon may suffice to furnish an explanation.

"The proof that the bile supplies elements of the first importance for the manufacture of sugar in the intestine, is the fact that we cannot tie the ductus choledochus without immediately suppressing the storing up of glycogen in the liver.

"The evidence that this element is the principle sulphur, and that this sulphur, set free in the presence of starch, acidified by the oxygenated water in the blood of diabetics, acts without cessation, is that we see everywhere the sulphur required by the organism of the diabetic for this catalytic work.

A NEW PARALYTIC AFFECTION.—Dr. W. Macgregor, *Glasgow Medical Journal*, June, 1877, describes a peculiar form of paralysis of the extensors occurring in his practice in the Mauritius. The subjects were all Chinamen, and in all the fatal cases the direct cause of death seemed to be oedema of the lungs, nothing abnormal could be detected in the muscular or nervous systems, beyond incipient fatty degeneration of the muscular fibre. In each case, however, the bile ducts contained large numbers of a parasite, the *Distoma sinense* of Cobbold (*Lancet*, August 21, 1875).

As to the connection between the parasite and the disease, it is by no means clear, but it is difficult to recognize any other cause. The author suggests a poisonous influence; if this be not the fact he thinks the paralysis must be regarded as reflex.

EPILEPSY.—O. Moschutkowsky, *Papers of the Physicians of the Odessa City Hospital*, 1876, (Russian), (abst. in *St. Petersburg Med. Wochenschr*, No. 40, 1876). In order to test the value of the present method of treatment in epilepsy, the author attempted to make full observations of the epileptics received in the Odessa city hospital during the year 1872. The task was one of unusual difficulty, as these cases seldom remained long in the institution, and as soon as they had recovered from the effects of an attack, in which they were picked up in the streets, they generally wanted to leave. Among the forty-six patients received, (32 males, 14 females)

almost one-half remained only about fourteen days. The majority of the patients were young (14 between 20 and 25 years), and the first onset of the disease was predominantly during the summer months. Prodromata were noticed in fourteen cases, but were usually of very short duration, and a pronounced aura was present in but a single case. As primary cause, wounds were most frequently stated, syphilis (9 times), degeneration of the brain, and typhus diseases. Almost all were well built and nourished. The presence of albumen in the urine immediately after the attack was undetected in sixteen cases. The treatment was carried on with a whole series of agents, chief among which were bromide of potassium and atropia. Bromide of potassium was employed by the author in twenty-six cases in very varying doses. Small doses (5 to 15 gr.) had after one or two months an effect on the heart, quickening the pulse; a tranquilizing of the nervous system was nevertheless rather rapidly brought about; exanthemata were very rare. Large doses (in males 20 gr. several times a day to four drachms daily, and in females 15 grs. to amount to three drachms a day), produced slowing of the pulse within a few days, and noticeable sedation of the nervous system at once, later they caused a nervous excitation and diminution of the body weight; exanthemata were almost constantly present. No effect on the secretions and temperature were noted. Altogether, the author observed three stages in the action of the bromide, in the beginning a sedative action, then excitation and paralytic symptoms, and the last is to be considered as a bromide cachexia, consisting in a feeling of weakness, unsteady progression, anæsthesia, tremor of the members, and arrhythmia of the pulse. In the sedative stage the bromide causes a decided decrease in the attacks. Regarding the parts taken by the several constituents, the author ascribes the aplastic action to the potash, and the diminution of the reflex excitability to the bromine.

Atropia formerly was employed on Brown-Sequard's recommendation with good results, and has of late fallen into undeserved neglect. Trouseau employed it where he saw during the attack a decided narrowing of the pupil. The author has seen a notable improvement as regards the frequency and intensity of the attacks from its use in nine cases, and gives the histories of seven of these. Iodide of potash (8 cases) acted similarly to the bromide. Of the other agents employed, the author saw no effect from nitrate of silver, valerianate of zinc, bromide of camphor, galvanization of the cervical sympathetic, and chloral; amyl nitrite, given in two cases, each time called forth the attack.

The author recommends the use of atropia in recent cases of epilepsy with frequent attacks, but in those of longer standing he advises the employment of bromide of potassium, (differing here from Nothnagel, who attributes no special value to it in one series of cases rather than the other). Neither is an absolute specific, but still both are of decided value. The albuminous state of the urine in epileptics has not the importance in a forensic relation that has been given it.

**DISORDERS OF TASTE AND TACT, AND OF THE SALIVARY SECRETION FROM AFFECTIONS OF THE TYMPANIC CAVITY.**—The following is an abstract of a recent memoir by V. Urbantschitsch, (Stuttgart, 1876), by Lewin, in the *Deutsche Med. Wochenschrift*, Feb. 24:

The author investigated the gustatory surfaces by means of concentrated solutions of salt, sugar, tartaric acid, and quinine. He found, like others, that the intensity of the gustatory sensation was greatest at the margin of the tongue, in the palato-glossal arch, and the soft palate, but that this sense also existed over the middle of the tongue, in the posterior wall of the pharynx, on the under surface of the tongue to both sides of the frenum of the uvula, in the hard palate, and on the mucous membrane lining the cheeks.

Nevertheless, the gustatory surface is not always in condition to feel its special sensation. An alienation of the sense of taste may occur so as to cause a substance to be appreciated first as another, and then later as the correct one, and indeed there are cases in which, in normal individuals, instead of the gustatory sensation, an analogous or altogether foreign smell is experienced; for example, after pencilling the posterior surface of the pharynx or the point of the tongue with quinine, there is experienced an odor of oil of bitter almonds.

The author then gives a review of the results of investigations of the gustatory sense in fifty individuals affected with purulent inflammation of the tympanic cavity, forty-six of whom gave evidence of an abnormal perception of taste impressions. In thirty-eight of these cases there was a heightened sense of taste, and in five there was a partial diminution and a partial increase of this special sense on the side of the mouth corresponding to the diseased ear.

Finally, the author has observed cases in which the intensity of the taste sensation sometimes varied according to the kind. Thus in one patient, with a purulent catarrh of the right middle ear, there was diminution of the gustatory sense for salt and bitter, and, on the other hand, an increased perception of sweet and sour tastes. This is well enough explained, if one supposes, as Young has done for the perception of the colors, red, green, and violet, that different nerve fibres serve for the perception of sweet, salt, sour, and bitter substances.

A complete loss of taste was not met with in any case.

Besides the gustatory fibres, in some cases of purulent ear affection, there are also tact nerves affected, so that this sense is also modified in the same parts. This condition may be due to pressure on the chorda tympani, and on the tympanic plexus, by irritation and injury of these nerves.

An irritation also produces anomalies of the salivary secretion, since through these nerves run the greater part of the secretory fibres of the salivary glands, *i. e.*, the vaso-dilator nerves of Cl. Bernard.

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The following are the titles of other recently published articles on the Pathology of the Nervous System, and Mind and Pathological Anatomy:

BURRESI, Tuberculosis of the Excitable Zone of the right cerebral Hemisphere. *Lo Sperimentale*, March, 1877; MORSELLI, Pathogeny of Epilepsy, Epileptiform attacks consecutive to Traumatic Lesions of the anterior cerebral Convolutions, *Ibid*; MORSELLI, Physio-Pathological Illustration of four cases of Disease of the Medulla oblongata and upper portion of the Spinal Cord, *Ibid*, May and Jan., 1877; MORSELLI, Contribution to the Psychology of Crime, Statistical and Anthropological Data of Criminal Suicides, *Archivio Italiano*, March and May, 1877; LIVI, Etiology of Progressive Paresis, *Revista Sperimentale*, Jan. and March, 1877; TAMBURINI, New Observations of Osteoma of the Spinal Arachnoid in Progressive Paresis, *Ibid*; HUGHLINGS JACKSON, Nervous Symptoms with Ear Disease, *Lancet (Am. Repr.)*, June; GERHARD, Tremor as a Symptom of Nervous Disease, *Med. and Surg. Rep.*, June 28; GALLI, Diphtheritic Paralysis, *Rivista Clinica*, March, 1877.

### c.—THERAPEUTICS OF THE NERVOUS SYSTEM AND MIND.

NITRITE OF AMYL.—The following are the classes of disorders in which nitrite of amyl is indicated, according to a recent memoir by Dr. Van Ermingen, analyzed by Dr. Carpenter-Mericourt *fil.* in the *Bull. Gen. de Therapeutique*.

I. Syncopal accidents, comatose, and characterized by feebleness or cardiac weakness with anæmia or venous congestion of the cerebro-spinal centres.

II. Diseases characterized by spasm of the vessels.

III. Diseases characterized by spasm of the voluntary or involuntary muscles.

IV. Diseases characterized by extreme elevation of temperature.

Three drops of amyl nitrite inhaled from a handkerchief overcome the threatening syncope of chloroform, and two drops have sufficed for a cure, but it is especially in angina pectoris and asthma that the best results have been obtained. Its employment is contra-indicated in aged persons or those who present indications of vascular alterations, or of heart disease, and it is also contra-indicated in plethoric females recently delivered.